

[19] 中华人民共和国国家知识产权局

[51] Int. Cl<sup>7</sup>

B01D 63/02

[12] 实用新型专利说明书

[21] ZL 专利号 00259369.6

[45] 授权公告日 2001 年 10 月 24 日

[11] 授权公告号 CN 2455348Y

[22] 申请日 2000.11.27

[73] 专利权人 王红军

地址 310013 浙江省杭州浙大新村 4 幢 411 室

[72] 设计人 王红军 柳定荣

[21] 申请号 00259369.6

[74] 专利代理机构 浙江高新专利事务所

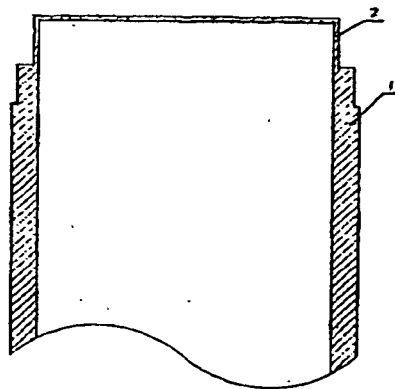
代理人 陈祯祥

权利要求书 1 页 说明书 2 页 附图页数 4 页

[54] 实用新型名称 一种中空纤维膜组件封装外壳

[57] 摘要

一种中空纤维膜组件封装外壳,解决提高封装效率,改善封装效果。结构特点在现有 敞口式封装外壳基础上设置封口部分。外壳与封口部分可以制成一体;也可以分体制造 然后连接在一起。外壳截面形状可以是圆形或矩形或其它形状;外壳包括封口部分的材 料可以是塑料或玻璃钢或金属等材料。



ISSN 1008-4274

## 权利要求书

---

- 1、一种中空纤维膜组件封装外壳，其特征是外壳（1）上设置封口部分（2）。
- 2、根据权利要求1所述中空纤维膜组件封装外壳，其特征是外壳（1）与封口部份（2）制成一体。
- 3、根据权利要求1所述中空纤维膜组件封装外壳，其特征是外壳（1）与封口部份（2）分体制造，二者连接在一起。
- 4、根据权利要求1或2或3所述中空纤维膜组件封装外壳，其特征是外壳截面形状为圆形或矩形或其它形状。
- 5、根据权利要求1或2或3所述中空纤维膜组件封装外壳，其特征是外壳（1）包括封口部分（2）的材料为塑料或玻璃钢或金属。

# 说明书

## 一种中空纤维膜组件封装外壳

本实用新型属于膜封接的部件，涉及中空纤维膜组件的封装外壳。

现有中空纤维膜组件封装的外壳，都采用敞口式外壳，在封装时必须要有封装模具与外壳端口配套安装。其中空纤维膜组件封装的过程如图 1 所示：

- a、准备所需敞口式膜组件外壳 1；
- b、准备封装模具 3，在其内壁上涂油脂 4，再将封装模具安装在外壳 1 的端部；
- c、在外壳 1 内装填中空纤维膜 5；
- d、加入胶粘剂 6 将中空纤维膜与外壳相互粘接在一起；
- e、脱除封装模具，并将膜组件表面油脂清除干净；
- f、用刀切除端头部分胶粘剂，使中空纤维膜组件成型。

这种中空纤维膜组件封装，由于采用敞口式封装外壳加装封装模具，产生了以下缺点：

1、造成封装工艺繁琐，在封装时需要配制封装模具，并在模具内壁表面要涂一层均匀油脂，脱模后给膜组件表面清洗及后续膜组件粘接带来困难；

2、一旦油脂涂抹不当或封装后未及时脱模，将会导致无法脱模或膜组件报废；

3、如果封装模具与膜组件外壳配合不当将使胶粘剂外溢，导致膜组件外观质量下降。

本实用新型针对现有技术缺点，改进中空纤维膜组件封装外壳，达到提高封装效率、改善封装效果的目的。

为实现上述目的采取技术方案如下：

中心内容是在现有敞口式中空纤维膜组件封装外壳基础上增加封口部份。

其优点是不必配制封装模具，省去涂抹油脂的工序；节省清洗膜组件表面和模具的时间；不致因无法脱模而造成膜组件封装失败；能提高生产工效和封装质量。

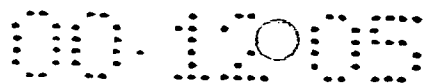
参照附图说明实施例：

图 1 是现有中空纤维膜组件封装工艺过程示意图。其中 a 图表示敞口式外壳 1；b 图表示在敞口式外壳 1 上，配装封装模具 3；

图 2 是本实用新型例 1 的结构示意图；

图 3 是本实用新型例 2 的结构示意图；

图 4 是利用本实用新型进行中空纤维膜组件封装工艺过程示意图。从图 1 和图 4 比较



中可知它不需封装模具，可省去涂抹油脂、脱模清洗等工序。

本实用新型的实施例 1 如图 2 所示，在外壳 1 的端口设置封口部分 2，外壳与封口部份制成一体。

实施例 2 如图 3 所示，外壳 1 与封口部份 2 是分体制造，再将二者连接在一起，连接方式可以胶接或焊接。

外壳 1 的截面形状为圆形或矩形或其它形状；外壳包括封口部份的材料为塑料或玻璃钢或金属等材料。

00.13.05

说明书附图

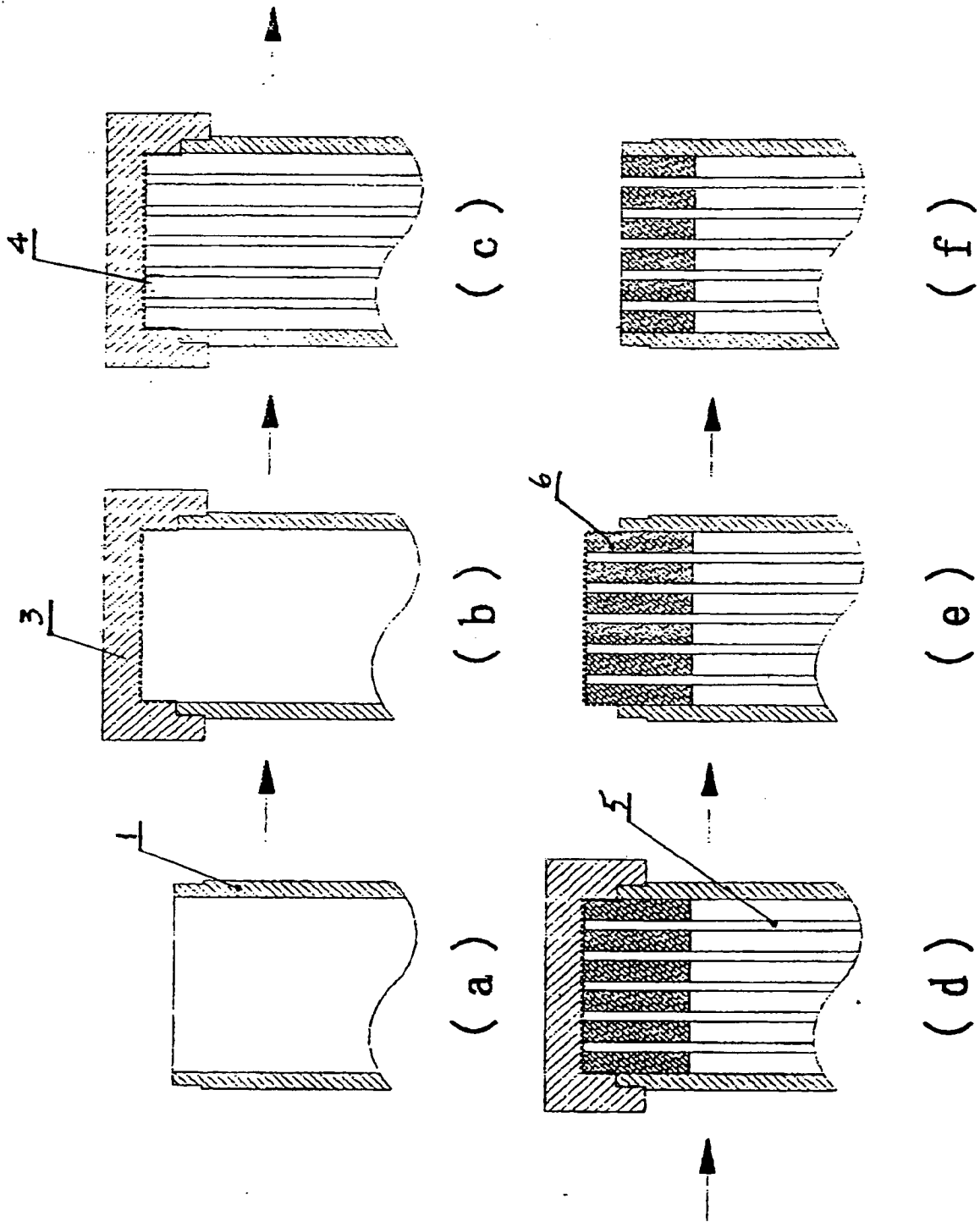


图 1

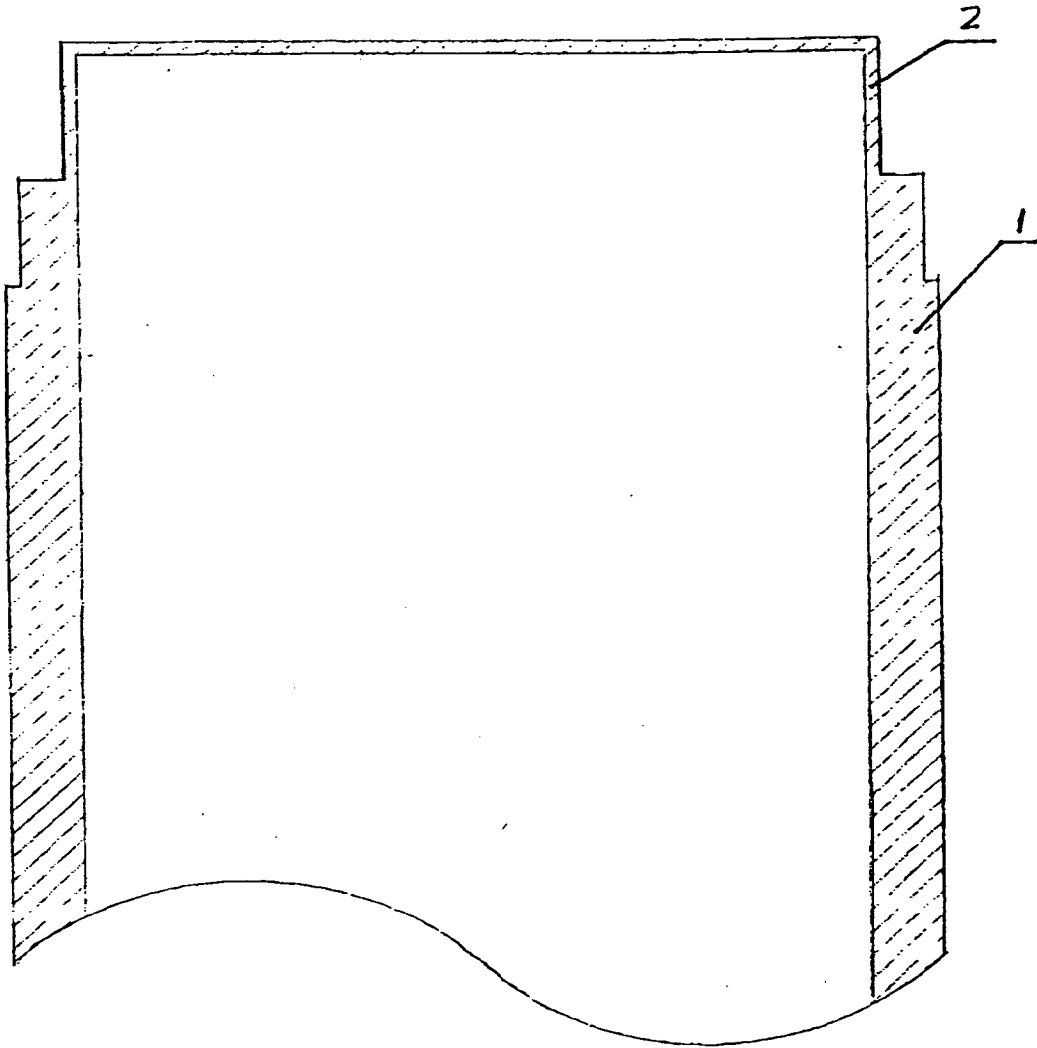


图 2

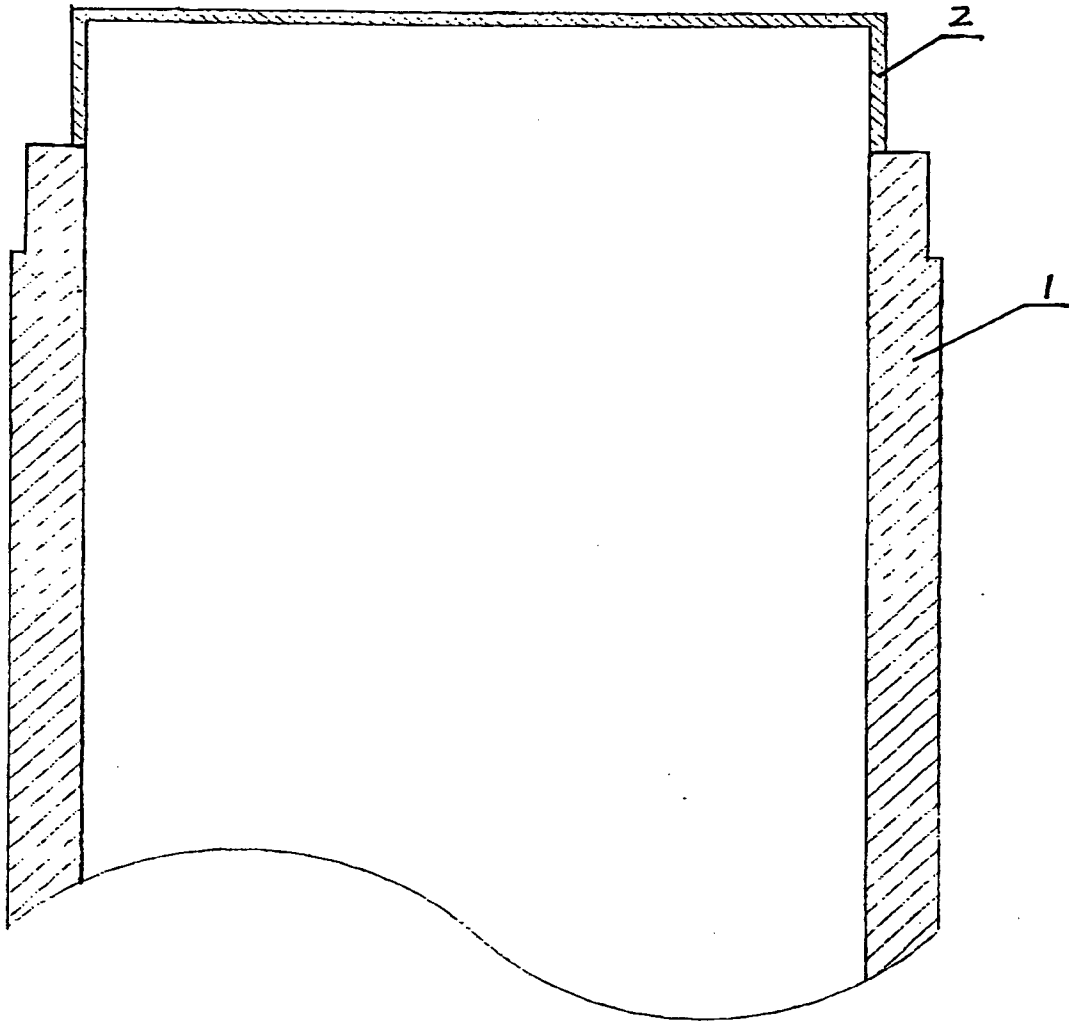


图 3

00.12.03

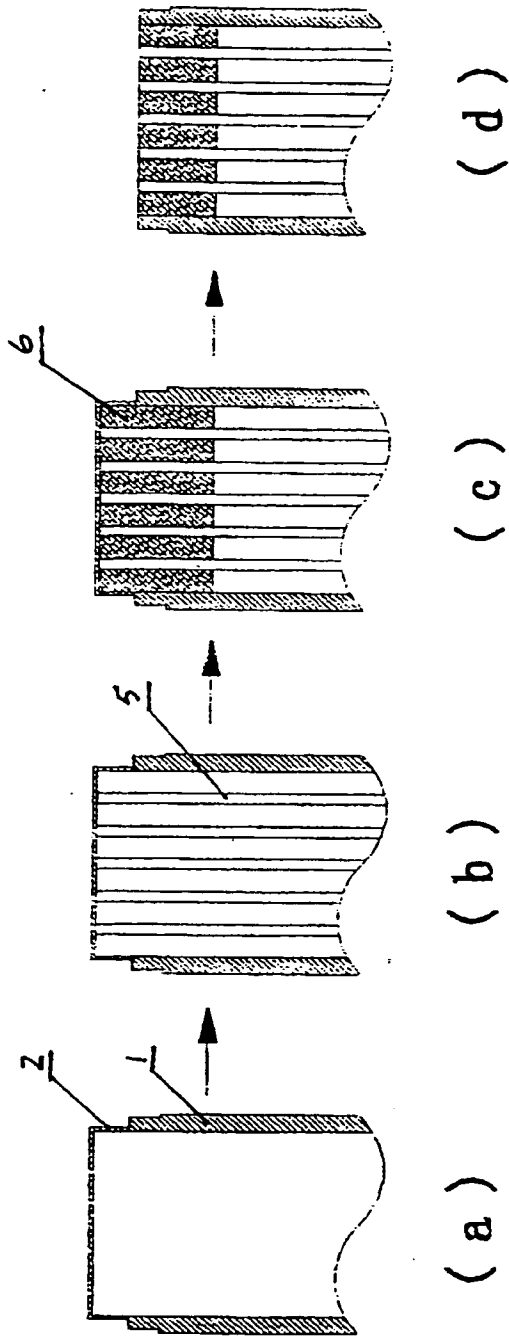


图 4



CN 2455348Y

Title of the Utility Model: A Packaging Case for a Hollow Fiber Membrane Module

### Abstract

A packaging case for a hollow fiber membrane module in order to increase the packaging efficiency and improve the packaging effect characterized in that a sealing part is provided on the conventional open type packaging case. The case and the sealing part can be either formed integrally or formed independently followed by connecting with each other. The section shape of the case can be circular, rectangular or other shape. The material for the sealing part of the case can be plastics, fiberglass reinforced plastics, metal, or others.

### Claims

1. A packaging case for a hollow fiber membrane module characterized in that a sealing part (2) is provided on the case (1).
2. The packaging case for a hollow fiber membrane module according to claim 1, wherein the case (1) and the sealing part (2) are formed integrally.
3. The packaging case for a hollow fiber membrane module according to claim 1, wherein the case (1) and the sealing part (2) are formed independently and then are connected together.
4. The packaging case for a hollow fiber membrane module according to anyone from claim 1 to 3, wherein the sectional shape of the case is circular, rectangular or other shape.
5. The packaging case for a hollow fiber membrane module according to anyone from claim 1 to 3, wherein the material for the case (1) and/or the sealing part (2) is plastics, fiberglass reinforced plastics or metal.

### Specification

The present utility model belongs to member for membrane packaging and relates to a packaging case for a hollow fiber membrane module.

The conventional case used for packaging the hollow fiber membrane module is generally open type where the end open of the case needs to be fitted with a packaging mold at the time of packaging. A process for packaging the hollow fiber membrane module is shown by fig. 1:

- a. preparing a case 1 for the open type membrane module;

- b. preparing a packaging mold 3, the inner wall of which is coated with a grease 4, then installing the mold on the end of the case 1;
- c. filling the case 1 with hollow fiber membrane 5;
- d. adding adhesive 6 to bond the hollow fiber membrane and the case together;
- e. releasing the packaging mold and cleaning off the grease on the surface of the membrane module;
- f. cutting off the adhesive on the end part, molding the hollow fiber membrane.

Such packaging of the hollow fiber membrane module has the following disadvantages due to using an open type packaging case:

1. The packaging process becomes complicated. A fitting packaging mold is required when packaging. Grease needs to be coated on the inner surface of the mold uniformly. Thus the cleaning of the surface of the membrane module after releasing the mold and the subsequent bonding thereof will be a problem;
2. Once the grease is coated inappropriately or the mold is not released timely, the mold will never be released or the membrane module becomes useless;
3. If the fitting between the packaging mold and the case of the membrane module is not successful, the adhesive will overflow, decreasing the appearance of the membrane module.

With regard to the disadvantages of the prior techniques, the present utility model improved the packaging case for the hollow fiber membrane module, so as to obtain the purpose of increasing the packaging efficiency and improve the packaging effects.

In order to obtain the above objectives, the following technical solution was carried out.

The essential content of the utility model is to add a sealing part based on the conventional open type packaging case for hollow fiber membrane module.

The advantages include: no need for prepare a fitting packaging mold, omitting the procedure of grease coating; shortening the time for cleaning the surface of the membrane module and the mold; no worry about membrane module packaging failure due to the releasing failure; and increasing the productivity and packaging quality.

An example will be explained referring to the figures.

Fig. 1 is a schematic view showing the packaging process of the hollow fiber membrane module, wherein a represents the open type case 1, b shows the installment of packaging mold 3 on the open type case 1;

Fig. 2 is a schematic structural view of Example 1 of the present utility model;

Fig. 3 is a schematic structural view of Example 2 of the present utility model;

Fig. 4 is a schematic view showing the packaging process of the hollow fiber membrane module according to the present utility model. Comparing Fig. 1 and Fig. 4, it can be seen that no packaging mold is required, and procedures as grease coating and mold releasing and cleaning are omitted.

Example 1 of the present utility model is shown by Fig. 2. Case 1 is provided with a sealing part 2 at its end. The case and the sealing part are formed integrally.

Example 2 of the present utility model is shown by Fig. 3. The case 1 and the sealing part 2 are formed independently. Then they are connected by using adhesives or by welding.

The sectional shape of the case 1 is circular or rectangular or other shapes. The material used for the case including the sealing part can be plastics, fiberglass reinforced plastics, metal, or others alike.